

## CLAIMS

What is claimed is:

1        1.    A method in a data processing system including an  
2        automated software test environment for automatically  
3        testing a software application, said method comprising  
4        the steps of:

5                establishing a work flow manager for automatically  
6        managing said automated software test environment, said  
7        automated software test environment including a plurality  
8        of computer systems coupled to a server computer system  
9        utilizing a network, said work flow manager being  
10        executed utilizing said server computer system;

11               establishing a plurality of ordered test phases to  
12        be executed in a specified order;

13               transmitting an event to said work flow manager  
14        utilizing one of said plurality of computer systems to  
15        start execution of selected ones of said plurality of  
16        ordered test phases; and

17               controlling execution of said selected ones of said  
18        plurality of ordered test phases utilizing said work flow  
19        manager in response to a receipt of events.

1        2.    The method according to claim 1, further comprising  
2        the step of executing an initialization test phase  
3        utilizing said work flow manager in response to a receipt  
4        of a build event by said server computer system, said

5 build event being generated by one of said plurality of  
6 computer systems utilized to build said software  
7 application.

1 3. The method according to claim 1, further comprising  
2 the steps of:

3 said step of establishing a plurality of ordered  
4 test phases further comprising the step of establishing a  
5 plurality of ordered test phases including an execution  
6 test phase for executing a plurality of tests on said  
7 software application; and

8 executing a first plurality of said plurality of  
9 tests in series.

10 4. The method according to claim 1, further comprising  
11 the steps of:

12 said step of establishing a plurality of ordered  
13 test phases further comprising the step of establishing a  
14 plurality of ordered test phases including an execution  
15 test phase for executing a plurality of tests on said  
16 software application; and

17 executing a second plurality of said plurality of  
18 tests in parallel.

19 5. The method according to claim 1, further comprising  
20 the steps of:

21 said step of establishing a plurality of ordered

4 test phases further comprising the step of establishing a  
5 plurality of ordered test phases including an execution  
6 test phase for executing a plurality of tests on said  
7 software application;

8 executing a first plurality of said plurality of  
9 tests in series; and

10 executing said first plurality of said plurality of  
11 tests in parallel with a fourth plurality of said  
12 plurality of tests.

13 6. The method according to claim 1, further comprising  
14 the step of receiving a job description utilizing said  
15 work flow manager, said job description including an  
16 identification of said software application and an  
17 identification of a plurality of tests to be executed on  
18 said software application.

19 7. The method according to claim 1, wherein the step of  
20 establishing a plurality of ordered test phases further  
21 comprises the step of establishing an initialization test  
22 phase for preparing said test environment for testing  
23 said software application, said initialization test phase  
24 capable of being executed prior to an availability of  
25 said software application.

26 8. The method according to claim 1, wherein the step of  
27 establishing a plurality of ordered test phases further  
28 comprises the step of establishing an installation test  
29 phase for installing test processes and said software

5 application on said plurality of computer systems.

1 9. The method according to claim 1, wherein the step of  
2 establishing a plurality of ordered test phases further  
3 comprises the steps of:

4 establishing an execution test phase for executing a  
5 plurality of tests on said software application; and

6 establishing a termination test phase for  
7 terminating said execution of said tests.

8 10. The method according to claim 1, further comprising  
9 the step of specifying an order for executing said  
1 plurality of ordered test phases including specifying  
2 completing execution of an initialization test phase  
3 prior to executing an installation test phase, completing  
4 execution of said installation test phase prior to  
5 executing an execution test phase, and completing  
6 execution of said execution test phase prior to executing  
7 a termination test phase.  
8  
9

1 11. The method according to claim 7, further comprising  
2 the step of during said initialization test phase prior  
3 to said software application being available, preparing  
4 said automated test environment to execute said plurality  
5 of tests.

1 12. The method according to claim 7, further comprising  
2 the step of generating an initialization event in  
3 response to a completion of building said software

4 application.

1 13. The method according to claim 7, wherein said step  
2 of prior to said availability of said software  
3 application, preparing said automated test environment to  
4 execute said plurality of tests further comprises the  
5 step of determining an availability of one of said  
6 plurality of computer system to be utilized to execute  
7 one of said plurality of tests.

1 14. The method according to claim 7, wherein said step  
2 of establishing an initialization test phase further  
3 comprises the step of establishing an initialization test  
4 phase including the steps of:

5 executing initialization test phase processes;

6 building said software application; and

7 copying said built software application to one of  
8 said plurality of computer systems, wherein said software  
9 application is available when said built software  
10 application is copied to one of said plurality of  
11 computer systems.

1 15. The method according to claim 14, further comprising  
2 the step of generating an installation event in response  
3 to a completion of said copying said built software  
4 application to one of said plurality of computer systems  
5 and a completion of initialization test phase processes.

1 16. The method according to claim 8, wherein said step  
2 of establishing an installation test phase further  
3 comprises the step of establishing an installation test  
4 phase including the step of installing a plurality of  
5 test cases on one of said plurality of computer systems.

1 17. The method according to claim 8, wherein said step  
2 of establishing an installation test phase further  
3 comprises the step of installing an operating system  
4 required to execute one of said plurality of tests on one  
5 of said plurality of computer systems.

1 18. The method according to claim 8, wherein said step  
2 of establishing an installation test phase further  
3 comprises the step of installing a plurality of test  
4 tools required to execute one of said plurality of tests  
5 on one of said plurality of computer systems.

1 19. The method according to claim 9, wherein said step  
2 of establishing an execution test phase further comprises  
3 the step of establishing an execution test phase  
4 including the step of executing said plurality of tests.

1 20. The method according to claim 9, wherein said step  
2 of establishing a termination test phase further  
3 comprises the step of establishing a termination test  
4 phase including the step of resetting said automated test  
5 environment to an original state.

1 21. The method according to claim 1, further comprising  
2 the step of establishing a validation procedure including  
3 the steps of:

4 suspending execution of said plurality of tests  
5 prior to a completion of said plurality of tests; and

6 providing a notification of said suspension.

1 22. The method according to claim 1, further comprising  
2 the step of establishing a validation procedure including  
3 the steps of:

4 terminating execution of said plurality of tests  
5 prior to a completion of said plurality of tests; and

6 providing a notification of said termination.

1 23. The method according to claim 1, further comprising  
2 the step of establishing a validation procedure including  
3 the steps of:

4 executing a process to determine a result of an  
5 execution of each said plurality of tests; and

6 reporting said result.

1 24. The method according to claim 1, wherein said step  
2 of establishing a plurality of ordered test phases  
3 further comprises the step of establishing a plurality of  
4 ordered test phases, at least each of two of said  
5 plurality of order test phases being executed utilizing  
6 different ones of said plurality of computer systems.

1 25. A method in a data processing system including an  
2 automated software test environment for automatically

3 testing a software application utilizing a plurality of  
4 tests, said method comprising the steps of:

5 establishing a work flow manager for automatically  
6 managing said automated software test environment, said  
7 automated software test environment including a plurality  
8 of computer systems coupled to a server computer system  
9 utilizing a network, said work flow manager being  
10 executed utilizing said server computer system;

11 building said software application utilizing one of  
12 said plurality of computer systems to create a build  
13 version of said software application;

14 automatically transmitting an initialization event  
15 to said work flow manager utilizing said one of said  
16 plurality of computer systems to start execution of an  
17 initialization test phase in response to a completion of  
18 said build version of said software application.

1 26. The method according to claim 25, further comprising  
2 the step of during said step of building said software  
3 application, preparing said automated test environment to  
4 execute a plurality of tests on said software  
5 application.

1 27. A method in a data processing system including an  
2 automated software test environment for automatically  
3 testing a software application utilizing a plurality of  
4 tests, said method comprising the steps of:

5 establishing a work flow manager for automatically



6 managing said automated software test environment, said  
7 automated software test environment including a plurality  
8 of computer systems coupled to a server computer system  
9 utilizing a network, said work flow manager being  
10 executed utilizing said server computer system;

11 building said software application utilizing a build  
12 computer system to create a build version of said  
13 software application;

14 copying said build version of said software  
15 application from said build computer system to one of  
16 said plurality of computer systems; and

17 automatically transmitting an installation event to  
18 said work flow manager utilizing said build computer  
19 system to start execution of an installation test phase  
20 in response to said copying of said build version to said  
21 one of said plurality of computer systems.

1 28. The method according to claim 27, further comprising  
2 the step of installing a plurality of test cases on one  
3 of said plurality of computer systems in response to a  
4 receipt of said installation event.

1 29. The method according to claim 27, further comprising  
2 the step of installing an operating system required to  
3 execute one of said plurality of tests on one of said  
4 plurality of computer systems in response to a receipt of  
5 said installation event.

1 30. The method according to claim 27, further comprising  
2 the step of installing a plurality of test tools required  
3 to execute one of said plurality of tests on one of said  
4 plurality of computer systems in response to a receipt of  
5 said installation event.

1 31. A method in a data processing system including an  
2 automated software test environment for automatically  
3 testing a software application, said method comprising  
4 the steps of:

5 establishing an event-driven work flow manager for  
6 automatically managing said automated software test  
7 environment in response to a receipt of events, said  
8 automated software test environment including a plurality  
9 of computer systems coupled to a server computer system  
10 utilizing a network, said work flow manager being  
11 executed utilizing said server computer system;

12 executing a plurality of tests on said software  
13 application utilizing said plurality of computer systems  
14 being managed by said work flow manager;

15 in response to a completion of one of said plurality  
16 of tests, executing a validation procedure to validate a  
17 result of said one of said plurality of tests;

18 suspending execution of others of said plurality of  
19 tests being executed in response to a failure of said  
20 validation procedure to validate said result of said one  
21 of said plurality of tests; and

22 providing a notification of said suspension of  
23 execution.

1 32. A method in a data processing system including an  
2 automated software test environment for automatically  
3 testing a software application, said method comprising  
4 the steps of:

5 establishing an event-driven work flow manager for  
6 automatically managing said automated software test  
7 environment in response to a receipt of events, said  
8 automated software test environment including a plurality  
9 of computer systems coupled to a server computer system  
10 utilizing a network, said work flow manager being  
11 executed utilizing said server computer system;

12 executing a plurality of tests on said software  
13 application utilizing said plurality of computer systems  
14 being managed by said work flow manager;

15 in response to a completion of one of said plurality  
16 of tests, executing a validation procedure to validate a  
17 result of said one of said plurality of tests;

18 terminating execution of others of said plurality of  
19 tests being executed in response to a failure of said  
20 validation procedure to validate said result of said one  
21 of said plurality of tests; and

22 providing a notification of said termination of  
23 execution.

1 33. A method in a data processing system including an  
2 automated software test environment for automatically  
3 testing a software application, said method comprising  
4 the steps of:

5 establishing an event-driven work flow manager for  
6 automatically managing said automated software test  
7 environment in response to a receipt of events, said  
8 automated software test environment including a plurality  
9 of computer systems coupled to a server computer system  
10 utilizing a network, said work flow manager being  
11 executed utilizing said server computer system;

12 executing a plurality of tests on said software  
13 application utilizing said plurality of computer systems  
14 being managed by said work flow manager;

15 in response to a completion of one of said plurality  
16 of tests, executing a validation procedure to validate a  
17 result of said one of said plurality of tests;

18 spawning a new process in response to said execution  
19 of a validation procedure to determine a result of  
20 execution of said one of said plurality of tests; and

21 reporting a result of said spawned new process,  
22 wherein said result of execution of said one of said  
23 plurality of tests is reported.

1 34. A data processing system including an automated  
2 software test environment for automatically testing a  
3 software application, said data processing system

4 comprising:

5 means for establishing a work flow manager for  
6 automatically managing said automated software test  
7 environment, said automated software test environment  
8 including a plurality of computer systems coupled to a  
9 server computer system utilizing a network, said work  
10 flow manager being executed utilizing said server  
11 computer system;

12 means for establishing a plurality of ordered test  
13 phases to be executed in a specified order;

14 means for transmitting an event to said work flow  
15 manager utilizing one of said plurality of computer  
16 systems to start execution of selected ones of said  
17 plurality of ordered test phases; and

18 means for controlling execution of said selected  
19 ones of said plurality of ordered test phases utilizing  
20 said work flow manager in response to a receipt of  
21 events.

1 35. The system according to claim 34, further comprising  
2 means for executing an initialization test phase  
3 utilizing said work flow manager in response to a receipt  
4 of a build event by said server computer system, said  
5 build event being generated by one of said plurality of  
6 computer systems utilized to build said software  
7 application.

1 36. The system according to claim 34, further  
2 comprising:

3 said means for establishing a plurality of ordered  
4 test phases further comprising means for establishing a  
5 plurality of ordered test phases including an execution  
6 test phase for executing a plurality of tests on said  
7 software application; and

8 means for executing a first plurality of said  
9 plurality of tests in series.

10 37. The system according to claim 34, further  
11 comprising:

12 said means for establishing a plurality of ordered  
13 test phases further comprising means for establishing a  
14 plurality of ordered test phases including an execution  
15 test phase for executing a plurality of tests on said  
16 software application; and

17 means for executing a second plurality of said  
18 plurality of tests in parallel.

19 38. The system according to claim 34, further  
20 comprising:

21 said means for establishing a plurality of ordered  
22 test phases further comprising means for establishing a  
23 plurality of ordered test phases including an execution  
24 test phase for executing a plurality of tests on said  
25 software application;

8 means for executing a first plurality of said  
9 plurality of tests in series; and

10 means for executing said first plurality of said  
11 plurality of tests in parallel with a fourth plurality of  
12 said plurality of tests.

1 39. The system according to claim 34, further comprising  
2 means for receiving a job description utilizing said work  
3 flow manager, said job description including an  
4 identification of said software application and an  
5 identification of a plurality of tests to be executed on  
6 said software application.

1 40. The system according to claim 34, wherein said means  
2 for establishing a plurality of ordered test phases  
3 further comprises means for establishing an  
4 initialization test phase for preparing said test  
5 environment for testing said software application, said  
6 initialization test phase capable of being executed prior  
7 to an availability of said software application.

1 41. The system according to claim 34, wherein said means  
2 for establishing a plurality of ordered test phases  
3 further comprises means for establishing an installation  
4 test phase for installing test processes and said  
5 software application on said plurality of computer  
6 systems.

1 42. The system according to claim 34, wherein said means  
2 for establishing a plurality of ordered test phases  
3 further comprises:

4 means for establishing an execution test phase for  
5 executing a plurality of tests on said software  
6 application; and

7 means for establishing a termination test phase for  
8 terminating said execution of said tests.

1 43. The system according to claim 34, further comprising  
2 means for specifying an order for executing said  
3 plurality of ordered test phases including specifying  
4 completing execution of an initialization test phase  
5 prior to executing an installation test phase, completing  
6 execution of said installation test phase prior to  
7 executing an execution test phase, and completing  
8 execution of said execution test phase prior to executing  
9 a termination test phase.

1 44. The system according to claim 40, further comprising  
2 means during said initialization test phase prior to said  
3 software application being available, for preparing said  
4 automated test environment to execute said plurality of  
5 tests.

1 45. The system according to claim 40, further comprising  
2 means for generating an initialization event in response  
3 to a completion of building said software application.

1 46. The system according to claim 40, wherein said means  
2 prior to said availability of said software application,  
3 for preparing said automated test environment to execute  
4 said plurality of tests further comprises means for  
5 determining an availability of one of said plurality of



6 computer system to be utilized to execute one of said  
7 plurality of tests.

1 47. The system according to claim 40, wherein said means  
2 for establishing an initialization test phase further  
3 comprises means for establishing an initialization test  
4 phase including:

5 means for executing initialization test phase  
6 processes;

7 means for building said software application; and

8 means for copying said built software application to  
9 one of said plurality of computer systems, wherein said  
10 software application is available when said built  
11 software application is copied to one of said plurality  
12 of computer systems.

1 48. The system according to claim 47, further comprising  
2 means for generating an installation event in response to  
3 a completion of said copying said built software  
4 application to one of said plurality of computer systems  
5 and a completion of initialization test phase processes.

1 49. The system according to claim 41, wherein said means  
2 for establishing an installation test phase further  
3 comprises means for establishing an installation test  
4 phase including means for installing a plurality of test  
5 cases on one of said plurality of computer systems.

1 50. The system according to claim 41, wherein said means  
2 for establishing an installation test phase further  
3 comprises means for installing an operating system  
4 required to execute one of said plurality of tests on one  
5 of said plurality of computer systems.

1 51. The system according to claim 41, wherein said means  
2 for establishing an installation test phase further  
3 comprises means for installing a plurality of test tools  
4 required to execute one of said plurality of tests on one  
5 of said plurality of computer systems.

1 52. The system according to claim 42, wherein said means  
2 for establishing an execution test phase further  
3 comprises means for establishing an execution test phase  
4 including means for executing said plurality of tests.

1 53. The system according to claim 42, wherein said means  
2 for establishing a termination test phase further  
3 comprises means for establishing a termination test phase  
4 including means for resetting said automated test  
5 environment to an original state.

1 54. The system according to claim 34, further comprising  
2 means for establishing a validation procedure including:

3 means for suspending execution of said plurality of  
4 tests prior to a completion of said plurality of tests;  
5 and

6 means for providing a notification of said  
7 suspension.

1 55. The system according to claim 34, further comprising  
2 means for establishing a validation procedure including:

3 means for terminating execution of said plurality of  
4 tests prior to a completion of said plurality of tests;  
5 and

6 means for providing a notification of said  
7 termination.

1 56. The system according to claim 34, further comprising  
2 means for establishing a validation procedure including:

3 means for executing a process to determine a result  
4 of an execution of each said plurality of tests; and

5 means for reporting said result.

1 57. The system according to claim 34, wherein said means  
2 for establishing a plurality of ordered test phases  
3 further comprises means for establishing a plurality of  
4 ordered test phases, at least each of two of said  
5 plurality of order test phases being executed utilizing  
6 different ones of said plurality of computer systems.

1 58. A data processing system including an automated  
2 software test environment for automatically testing a  
3 software application utilizing a plurality of tests,  
4 comprising:

5 means for establishing a work flow manager for

6 automatically managing said automated software test  
7 environment, said automated software test environment  
8 including a plurality of computer systems coupled to a  
9 server computer system utilizing a network, said work  
10 flow manager being executed utilizing said server  
11 computer system;

12 means for building said software application  
13 utilizing one of said plurality of computer systems to  
14 create a build version of said software application;

15 means for automatically transmitting an  
16 initialization event to said work flow manager utilizing  
17 said one of said plurality of computer systems to start  
18 execution of an initialization test phase in response to  
19 a completion of said build version of said software  
20 application.

1 59. The system according to claim 58, further comprising  
2 means during said means for building said software  
3 application, for preparing said automated test  
4 environment to execute a plurality of tests on said  
5 software application.

1 60. A data processing system including an automated  
2 software test environment for automatically testing a  
3 software application utilizing a plurality of tests,  
4 comprising:

5 means for establishing a work flow manager for  
6 automatically managing said automated software test  
7 environment, said automated software test environment

8 including a plurality of computer systems coupled to a  
9 server computer system utilizing a network, said work  
10 flow manager being executed utilizing said server  
11 computer system;

12 means for building said software application  
13 utilizing a build computer system to create a build  
14 version of said software application;

15 means for copying said build version of said  
16 software application from said build computer system to  
17 one of said plurality of computer systems; and

18 means for automatically transmitting an installation  
19 event to said work flow manager utilizing said build  
20 computer system to start execution of an installation  
21 test phase in response to said copying of said build  
22 version to said one of said plurality of computer  
23 systems.

1 61. The system according to claim 60, further comprising  
2 means for installing a plurality of test cases on one of  
3 said plurality of computer systems in response to a  
4 receipt of said installation event.

1 62. The system according to claim 60, further comprising  
2 means for installing an operating system required to  
3 execute one of said plurality of tests on one of said  
4 plurality of computer systems in response to a receipt of  
5 said installation event.

1 63. The system according to claim 60, further comprising  
2 means for installing a plurality of test tools required  
3 to execute one of said plurality of tests on one of said  
4 plurality of computer systems in response to a receipt of  
5 said installation event.

1 64. A data processing system including an automated  
2 software test environment for automatically testing a  
3 software application, comprising:

4 means for establishing an event-driven work flow  
5 manager for automatically managing said automated  
6 software test environment in response to a receipt of  
7 events, said automated software test environment  
8 including a plurality of computer systems coupled to a  
9 server computer system utilizing a network, said work  
10 flow manager being executed utilizing said server  
11 computer system;

12 means for executing a plurality of tests on said  
13 software application utilizing said plurality of computer  
14 systems being managed by said work flow manager;

15 means responsive to a completion of one of said  
16 plurality of tests, for executing a validation procedure  
17 to validate a result of said one of said plurality of  
18 tests;

19 means for suspending execution of others of said  
20 plurality of tests being executed in response to a  
21 failure of said validation procedure to validate said  
22 result of said one of said plurality of tests; and

23 means for providing a notification of said  
24 suspension of execution.

1 65. A data processing system including an automated  
2 software test environment for automatically testing a  
3 software application, comprising:

4 means for establishing an event-driven work flow  
5 manager for automatically managing said automated  
6 software test environment in response to a receipt of  
7 events, said automated software test environment  
8 including a plurality of computer systems coupled to a  
9 server computer system utilizing a network, said work  
10 flow manager being executed utilizing said server  
11 computer system;

12 means for executing a plurality of tests on said  
13 software application utilizing said plurality of computer  
14 systems being managed by said work flow manager;

15 means responsive to a completion of one of said  
16 plurality of tests, for executing a validation procedure  
17 to validate a result of said one of said plurality of  
18 tests;

19 means for terminating execution of others of said  
20 plurality of tests being executed in response to a  
21 failure of said validation procedure to validate said  
22 result of said one of said plurality of tests; and

23 means for providing a notification of said  
24 termination of execution.

1 66. A data processing system including an automated  
2 software test environment for automatically testing a  
3 software application, comprising:

4 means for establishing an event-driven work flow  
5 manager for automatically managing said automated  
6 software test environment in response to a receipt of  
7 events, said automated software test environment  
8 including a plurality of computer systems coupled to a  
9 server computer system utilizing a network, said work  
10 flow manager being executed utilizing said server  
11 computer system;

12 means for executing a plurality of tests on said  
13 software application utilizing said plurality of computer  
14 systems being managed by said work flow manager;

15 means responsive to a completion of one of said  
16 plurality of tests, for executing a validation procedure  
17 to validate a result of said one of said plurality of  
18 tests;

19 means for spawning a new process in response to said  
20 execution of a validation procedure to determine a result  
21 of execution of said one of said plurality of tests; and

22 means for reporting a result of said spawned new  
23 process, wherein said result of execution of said one of  
24 said plurality of tests is reported.



1 67. A computer program product including an automated  
2 software test environment for automatically testing a  
3 software application, said computer program product  
4 comprising:

5 instruction means for establishing a work flow  
6 manager for automatically managing said automated  
7 software test environment, said automated software test  
8 environment including a plurality of computer systems  
9 coupled to a server computer system utilizing a network,  
10 said work flow manager being executed utilizing said  
11 server computer system;

12 instruction means for establishing a plurality of  
13 ordered test phases to be executed in a specified order;

14 instruction means for transmitting an event to said  
15 work flow manager utilizing one of said plurality of  
16 computer systems to start execution of selected ones of  
17 said plurality of ordered test phases; and

18 instruction means for controlling execution of said  
19 selected ones of said plurality of ordered test phases  
20 utilizing said work flow manager in response to a receipt  
21 of events.

1 68. The computer program product according to claim 67,  
2 further comprising instruction means for executing an  
3 initialization test phase utilizing said work flow  
4 manager in response to a receipt of a build event by said  
5 server computer system, said build event being generated  
6 by one of said plurality of computer systems utilized to

7 build said software application.

1 69. The computer program product according to claim 67,  
2 further comprising:

3 said instruction means for establishing a plurality  
4 of ordered test phases further comprising instruction  
5 means for establishing a plurality of ordered test phases  
6 including an execution test phase for executing a  
7 plurality of tests on said software application; and

8 instruction means for executing a first plurality of  
9 said plurality of tests in series.

1 70. The computer program product according to claim 67,  
2 further comprising:

3 said instruction means for establishing a plurality  
4 of ordered test phases further comprising instruction  
5 means for establishing a plurality of ordered test phases  
6 including an execution test phase for executing a  
7 plurality of tests on said software application; and

8 instruction means for executing a second plurality  
9 of said plurality of tests in parallel.

1 71. The computer program product according to claim 67,  
2 further comprising:

3 said instruction means for establishing a plurality  
4 of ordered test phases further comprising instruction  
5 means for establishing a plurality of ordered test phases

6 including an execution test phase for executing a  
7 plurality of tests on said software application;

8 instruction means for executing a first plurality of  
9 said plurality of tests in series; and

10 instruction means for executing said first plurality  
11 of said plurality of tests in parallel with a fourth  
12 plurality of said plurality of tests.

1 72. The computer program product according to claim 67,  
2 further comprising instruction means for receiving a job  
3 description utilizing said work flow manager, said job  
4 description including an identification of said software  
5 application and an identification of a plurality of tests  
6 to be executed on said software application.

1 73. The computer program product according to claim 67,  
2 wherein said instruction means for establishing a  
3 plurality of ordered test phases further comprises  
4 instruction means for establishing an initialization test  
5 phase for preparing said test environment for testing  
6 said software application, said initialization test phase  
7 capable of being executed prior to an availability of  
8 said software application.

1 74. The computer program product according to claim 67,  
2 wherein said instruction means for establishing a  
3 plurality of ordered test phases further comprises  
4 instruction means for establishing an installation test  
5 phase for installing test processes and said software  
6 application on said plurality of computer systems.

1 75. The computer program product according to claim 67,  
2 wherein said instruction means for establishing a  
3 plurality of ordered test phases further comprises:

4 instruction means for establishing an execution test  
5 phase for executing a plurality of tests on said software  
6 application; and

7 instruction means for establishing a termination  
8 test phase for terminating said execution of said tests.

1 76. The computer program product according to claim 67,  
2 further comprising instruction means for specifying an  
3 order for executing said plurality of ordered test phases  
4 including specifying completing execution of an  
5 initialization test phase prior to executing an  
6 installation test phase, completing execution of said  
7 installation test phase prior to executing an execution  
8 test phase, and completing execution of said execution  
9 test phase prior to executing a termination test phase.

1 77. The computer program product according to claim 73,  
2 further comprising instruction means during said  
3 initialization test phase prior to said software  
4 application being available, for preparing said automated  
5 test environment to execute said plurality of tests.

1 78. The computer program product according to claim 73,  
2 further comprising instruction means for generating an  
3 initialization event in response to a completion of  
4 building said software application.

1 79. The computer program product according to claim 73,  
2 wherein said instruction means prior to said availability  
3 of said software application, for preparing said  
4 automated test environment to execute said plurality of  
5 tests further comprises instruction means for determining  
6 an availability of one of said plurality of computer  
7 system to be utilized to execute one of said plurality of  
8 tests.

1 80. The computer program product according to claim 73,  
2 wherein said instruction means for establishing an  
3 initialization test phase further comprises instruction  
4 means for establishing an initialization test phase  
5 including:

6 instruction means for executing initialization test  
7 phase processes;

8 instruction means for building said software  
9 application; and

10 instruction means for copying said built software  
11 application to one of said plurality of computer systems,  
12 wherein said software application is available when said  
13 built software application is copied to one of said  
14 plurality of computer systems.

1 81. The computer program product according to claim 80,  
2 further comprising instruction means for generating an  
3 installation event in response to a completion of said  
4 copying said built software application to one of said

5 plurality of computer systems and a completion of  
6 initialization test phase processes.

1 82. The computer program product according to claim 74,  
2 wherein said instruction means for establishing an  
3 installation test phase further comprises instruction  
4 means for establishing an installation test phase  
5 including instruction means for installing a plurality of  
6 test cases on one of said plurality of computer systems.

1 83. The computer program product according to claim 74,  
2 wherein said instruction means for establishing an  
3 installation test phase further comprises instruction  
4 means for installing an operating system required to  
5 execute one of said plurality of tests on one of said  
6 plurality of computer systems.

1 84. The computer program product according to claim 74,  
2 wherein said instruction means for establishing an  
3 installation test phase further comprises instruction  
4 means for installing a plurality of test tools required  
5 to execute one of said plurality of tests on one of said  
6 plurality of computer systems.

1 85. The computer program product according to claim 75,  
2 wherein said instruction means for establishing an  
3 execution test phase further comprises instruction means  
4 for establishing an execution test phase including  
5 instruction means for executing said plurality of tests.

1 86. The computer program product according to claim 75,  
2 wherein said instruction means for establishing a

3 termination test phase further comprises instruction  
4 means for establishing a termination test phase including  
5 instruction means for resetting said automated test  
6 environment to an original state.

1 87. The computer program product according to claim 67,  
2 further comprising instruction means for establishing a  
3 validation procedure including:

4 instruction means for suspending execution of said  
5 plurality of tests prior to a completion of said  
6 plurality of tests; and

7 instruction means for providing a notification of  
8 said suspension.

1 88. The computer program product according to claim 67,  
2 further comprising instruction means for establishing a  
3 validation procedure including:

4 instruction means for terminating execution of said  
5 plurality of tests prior to a completion of said  
6 plurality of tests; and

7 instruction means for providing a notification of  
8 said termination.

1 89. The computer program product according to claim 67,  
2 further comprising instruction means for establishing a  
3 validation procedure including:

4 instruction means for executing a process to

5 determine a result of an execution of each said plurality  
6 of tests; and

7 instruction means for reporting said result.

1 90. The computer program product according to claim 67,  
2 wherein said instruction means for establishing a  
3 plurality of ordered test phases further comprises  
4 instruction means for establishing a plurality of ordered  
5 test phases, at least each of two of said plurality of  
6 order test phases being executed utilizing different ones  
7 of said plurality of computer systems.

1 91. A computer program product including an automated  
2 software test environment for automatically testing a  
3 software application utilizing a plurality of tests,  
4 comprising:

5 instruction means for establishing a work flow  
6 manager for automatically managing said automated  
7 software test environment, said automated software test  
8 environment including a plurality of computer systems  
9 coupled to a server computer system utilizing a network,  
10 said work flow manager being executed utilizing said  
11 server computer system;

12 instruction means for building said software  
13 application utilizing one of said plurality of computer  
14 systems to create a build version of said software  
15 application;

16 instruction means for automatically transmitting an



17 initialization event to said work flow manager utilizing  
18 said one of said plurality of computer systems to start  
19 execution of an initialization test phase in response to  
20 a completion of said build version of said software  
21 application.

1 92. The computer program product according to claim 91,  
2 further comprising instruction means during said  
3 instruction means for building said software application,  
4 for preparing said automated test environment to execute  
5 a plurality of tests on said software application.

6 93. A computer program product including an automated  
7 software test environment for automatically testing a  
8 software application utilizing a plurality of tests,  
9 comprising:

10 instruction means for establishing a work flow  
11 manager for automatically managing said automated  
12 software test environment, said automated software test  
13 environment including a plurality of computer systems  
14 coupled to a server computer system utilizing a network,  
15 said work flow manager being executed utilizing said  
16 server computer system;

17 instruction means for building said software  
18 application utilizing a build computer system to create a  
19 build version of said software application;

20 instruction means for copying said build version of  
21 said software application from said build computer system  
to one of said plurality of computer systems; and

18 instruction means for automatically transmitting an  
19 installation event to said work flow manager utilizing  
20 said build computer system to start execution of an  
21 installation test phase in response to said copying of  
22 said build version to said one of said plurality of  
23 computer systems.

1 94. The computer program product according to claim 93,  
2 further comprising instruction means for installing a  
3 plurality of test cases on one of said plurality of  
4 computer systems in response to a receipt of said  
5 installation event.

1 95. The computer program product according to claim 93,  
2 further comprising instruction means for installing an  
3 operating system required to execute one of said  
4 plurality of tests on one of said plurality of computer  
5 systems in response to a receipt of said installation  
6 event.

1 96. The computer program product according to claim 93,  
2 further comprising instruction means for installing a  
3 plurality of test tools required to execute one of said  
4 plurality of tests on one of said plurality of computer  
5 systems in response to a receipt of said installation  
6 event.

1 97. A computer program product including an automated  
2 software test environment for automatically testing a  
3 software application, comprising:

4 instruction means for establishing an event-driven

5 work flow manager for automatically managing said  
6 automated software test environment in response to a  
7 receipt of events, said automated software test  
8 environment including a plurality of computer systems  
9 coupled to a server computer system utilizing a network,  
10 said work flow manager being executed utilizing said  
11 server computer system;

12 instruction means for executing a plurality of tests  
13 on said software application utilizing said plurality of  
14 computer systems being managed by said work flow manager;

15 instruction means responsive to a completion of one  
16 of said plurality of tests, for executing a validation  
17 procedure to validate a result of said one of said  
18 plurality of tests;

19 instruction means for suspending execution of others  
20 of said plurality of tests being executed in response to  
21 a failure of said validation procedure to validate said  
22 result of said one of said plurality of tests; and

23 instruction means for providing a notification of  
24 said suspension of execution.

1 98. A computer program product including an automated  
2 software test environment for automatically testing a  
3 software application, comprising:

4 instruction means for establishing an event-driven  
5 work flow manager for automatically managing said  
6 automated software test environment in response to a

7 receipt of events, said automated software test  
8 environment including a plurality of computer systems  
9 coupled to a server computer system utilizing a network,  
10 said work flow manager being executed utilizing said  
11 server computer system;

12 instruction means for executing a plurality of tests  
13 on said software application utilizing said plurality of  
14 computer systems being managed by said work flow manager;

15 instruction means responsive to a completion of one  
16 of said plurality of tests, for executing a validation  
17 procedure to validate a result of said one of said  
18 plurality of tests;

19 instruction means for terminating execution of  
20 others of said plurality of tests being executed in  
21 response to a failure of said validation procedure to  
22 validate said result of said one of said plurality of  
23 tests; and

24 instruction means for providing a notification of  
25 said termination of execution.

1 99. A computer program product including an automated  
2 software test environment for automatically testing a  
3 software application, comprising:

4 instruction means for establishing an event-driven  
5 work flow manager for automatically managing said  
6 automated software test environment in response to a  
7 receipt of events, said automated software test

environment including a plurality of computer systems coupled to a server computer system utilizing a network, said work flow manager being executed utilizing said server computer system;

instruction means for executing a plurality of tests on said software application utilizing said plurality of computer systems being managed by said work flow manager;

instruction means responsive to a completion of one of said plurality of tests, for executing a validation procedure to validate a result of said one of said plurality of tests;

instruction means for spawning a new process in response to said execution of a validation procedure to determine a result of execution of said one of said plurality of tests; and

instruction means for reporting a result of said spawned new process, wherein said result of execution of said one of said plurality of tests is reported.